

Fig. 1

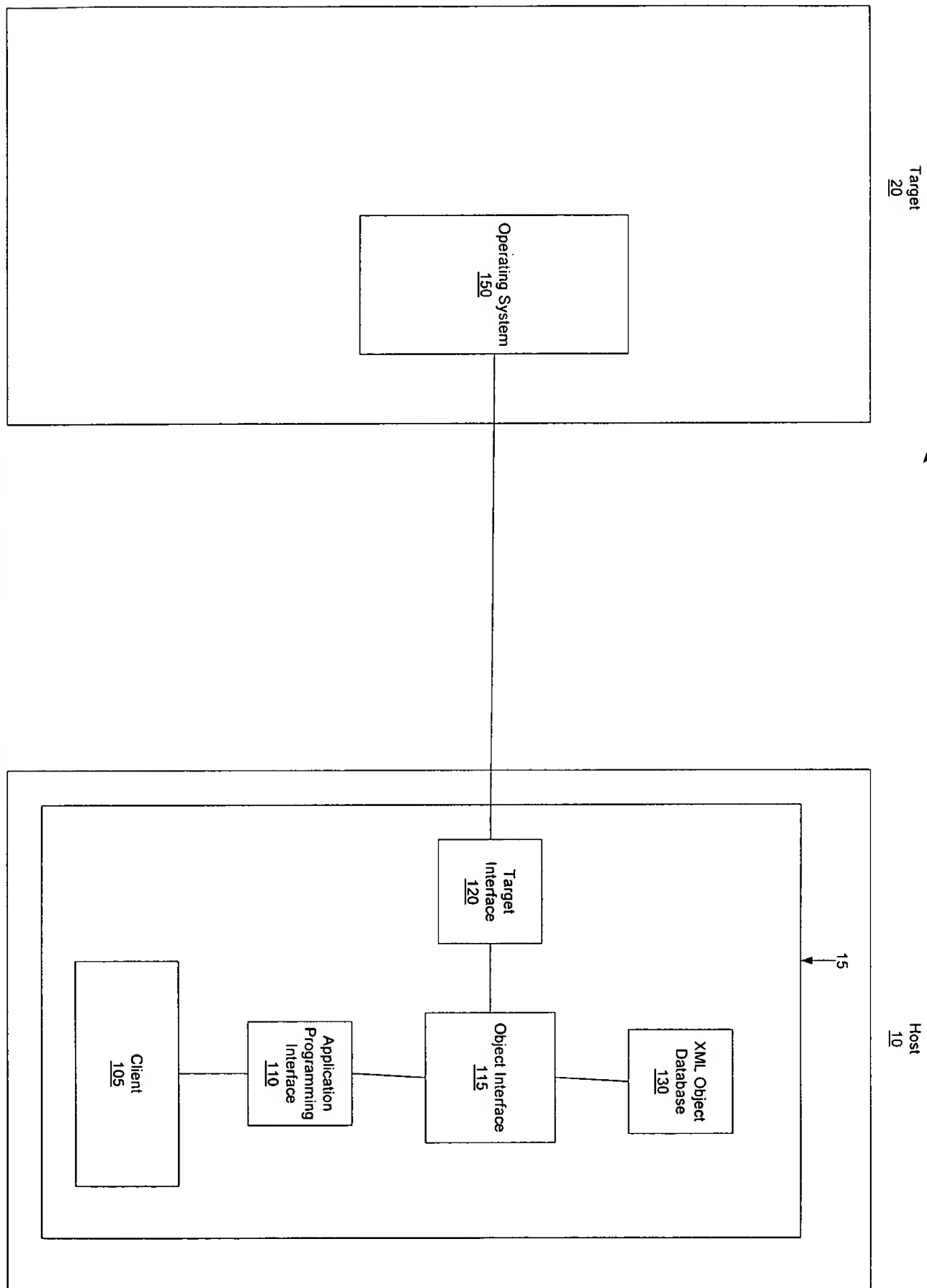


FIG. 1 is a block diagram of a system architecture. The system architecture includes a Host 10 and a Target 20. The Host 10 includes an XML Object Database 130, an Object Interface 115, an Application Programming Interface 110, and a Client 105. The Target 20 includes an Operating System 150. The Host 10 and the Target 20 are connected via a Target Interface 120. The XML Object Database 130 is connected to the Object Interface 115, which is connected to the Application Programming Interface 110, which is connected to the Client 105. The Object Interface 115 is also connected to the Target Interface 120, which is connected to the Operating System 150.

Fig. 2a

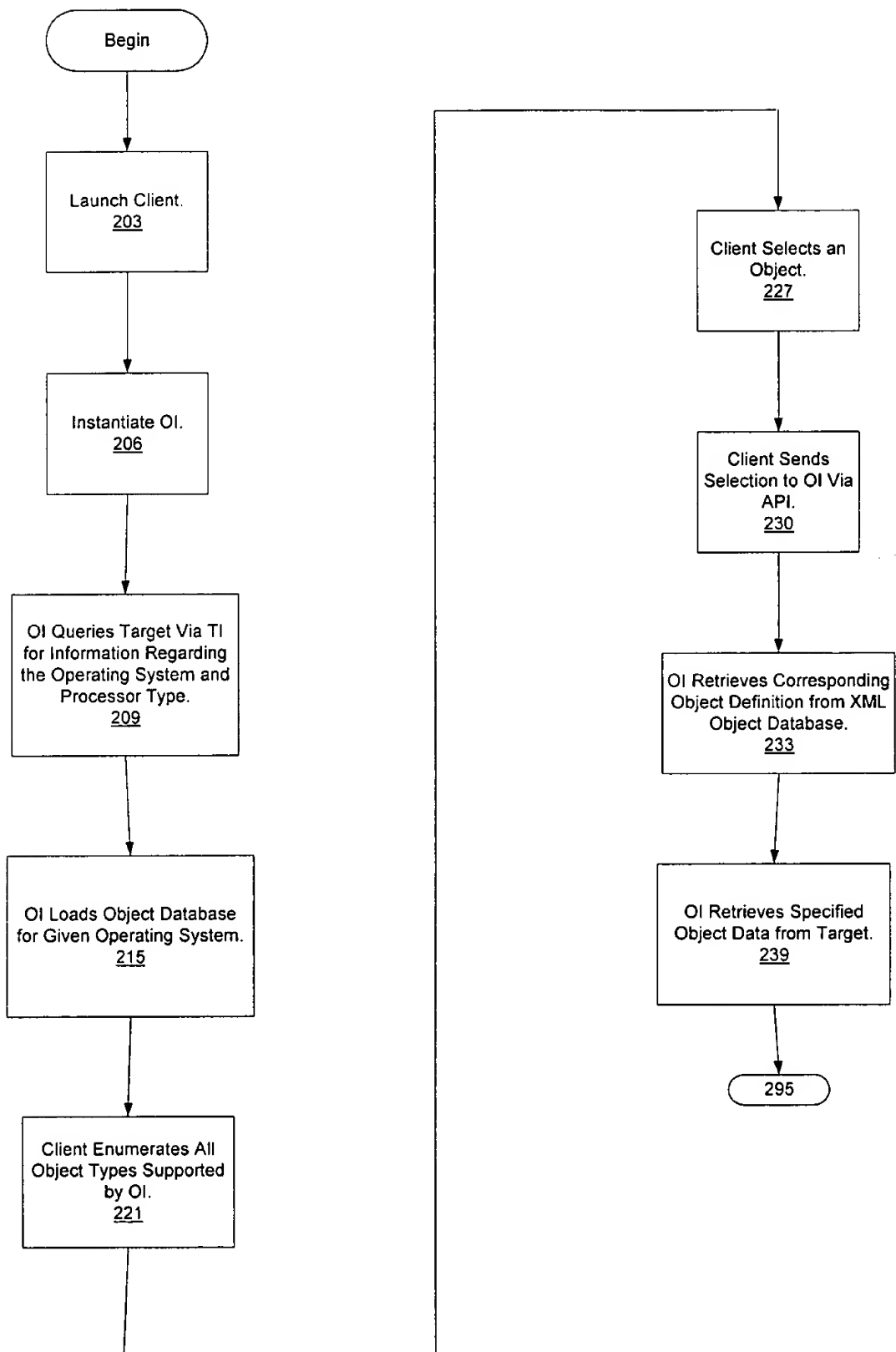


Fig. 2b

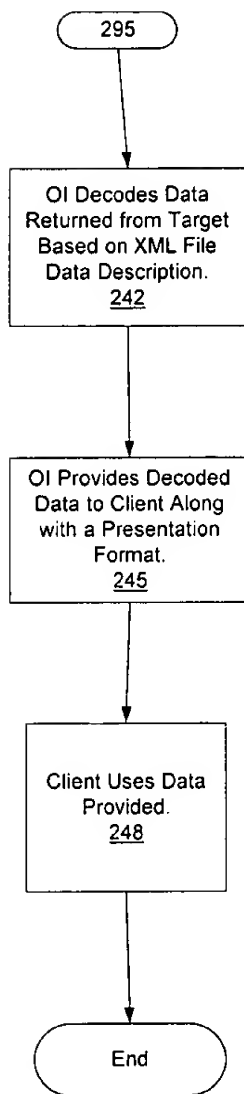


Fig. 3

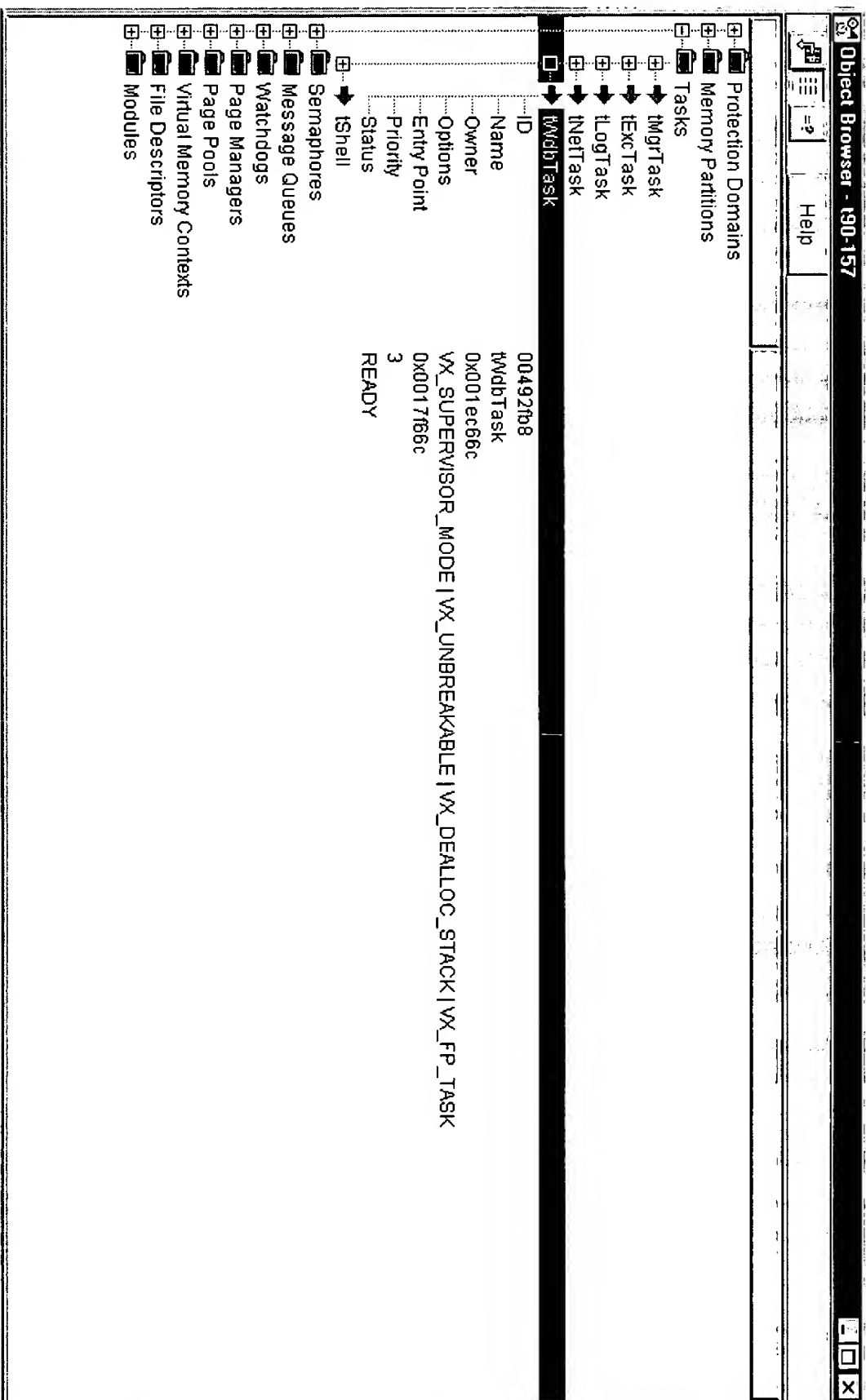


Fig. 4a

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE objType SYSTEM "objTypes.dtd">
<objType objTypeNumber="1" objTypeName="sem" objTypeHandler="tom"
symbolTableName="semClassId">
  <objTypeAttributes>
    <objTypeAttribute key="objTypeVisiblityLevel">
      <value type="Integer">
        <literal>1</literal>
      </value>
      <formatStr>
        <literal>%d</literal>
      </formatStr>
    </objTypeAttribute>
    <objTypeAttribute key="objTypeString1">
      <valueStr>
        <literal>Semaphore</literal>
      </valueStr>
    </objTypeAttribute>
    <objTypeAttribute key="objTypeString2">
      <valueStr>
        <literal>Semaphores</literal>
      </valueStr>
    </objTypeAttribute>
    <objTypeAttribute key="objTypeIconLarge">
      <valueStr>
        <literal>semL.ico</literal>
      </valueStr>
    </objTypeAttribute>
    <objTypeAttribute key="objTypeIconSmall">
      <valueStr>
        <literal>sem.gif</literal>
      </valueStr>
    </objTypeAttribute>
  </objTypeAttributes>
```

Fig. 4b

```
<objAttributes>
  <objAttribute key="objId">
    <label>
      <literal>ID</literal>
    </label>
    <value>
      <substitute fieldName="objId"/>
    </value>
    <formatStr>
      <literal>%08x</literal>
    </formatStr>
    <detailLevel>
      <literal>1</literal>
    </detailLevel>
  </objAttribute>
  <objAttribute key="objName">
    <label>
      <literal>Name</literal>
    </label>
    <value>
      <substitute fieldName="objName"/>
    </value>
    <formatStr>
      <literal>%s</literal>
    </formatStr>
    <detailLevel>
      <literal>1</literal>
    </detailLevel>
  </objAttribute>
  <objAttribute key="objOwner">
    <label>
      <literal>Owner</literal>
    </label>
    <value>
      <substitute fieldName="objOwner"/>
    </value>
    <formatStr>
      <literal>0x%08x</literal>
    </formatStr>
    <detailLevel>
      <literal>1</literal>
    </detailLevel>
  </objAttribute>
</objAttributes>
```

Fig. 4c

```
<objAttribute key="objHasChildren">
  <value>
    <switch fieldName="objChildListPtr">
      <case caseValue="0">
        <literal>>false</literal>
      </case>
      <case caseValue="*">
        <literal>>true</literal>
      </case>
    </switch>
  </value>
  <formatStr>
    <literal>%s</literal>
  </formatStr>
</objAttribute>
<objAttribute key="objType">
  <label>
    <literal>Type</literal>
  </label>
  <value>
    <substitute fieldName="semType"/>
  </value>
  <formatStr>
    <literal>0x%x</literal>
  </formatStr>
  <valueStr>
    <switch fieldName="semType">
      <case caseValue="0">
        <literal>Binary</literal>
      </case>
      <case caseValue="1">
        <literal>Mutex</literal>
      </case>
      <case caseValue="2">
        <literal>Counting</literal>
      </case>
      <case caseValue="*">
        <literal>UNKNOWN</literal>
      </case>
    </switch>
  </valueStr>
  <detailLevel>
    <literal>1</literal>
  </detailLevel>
</objAttribute>
```

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Fig. 4d

```
<objAttribute key="objState">
```

<!--There are two label entries here. The first will be overridden by the second, if the second does not return a null value when processed. i.e. if the fieldMap contains an entry for the "semType" fieldName, the second label will override the first when processed. In the case of a getDatabaseAttributes() call, the second will return a null since "semType" will not be in the field map, and the value contained in the first will persist.-->

```
<label>
```

```
<literal>State/Count/Owner</literal>
```

```
</label>
```

```
<label>
```

```
<switch fieldName="semType">
```

```
<case caseValue="0">
```

```
<!--Binary Semaphore-->
```

```
<literal>State</literal>
```

```
</case>
```

```
<case caseValue="1">
```

```
<!--Mutex Semaphore-->
```

```
<literal>Owner</literal>
```

```
</case>
```

```
<case caseValue="2">
```

```
<!--Counting Semaphore-->
```

```
<literal>Count</literal>
```

```
</case>
```

```
<case caseValue="*">
```

```
<literal>Owner</literal>
```

```
</case>
```

```
</switch>
```

```
</label>
```

```
<value>
```

```
<substitute fieldName="semState"/>
```

```
</value>
```

```
<formatStr>
```

```
<switch fieldName="semType">
```

```
<case caseValue="2">
```

```
<!--Counting Semaphore - display as decimal-->
```

```
<literal>%d</literal>
```

```
</case>
```

```
<case caseValue="*">
```

```
<!--Any other sort of semaphore - display as hex-->
```

```
<literal>0x%x</literal>
```

```
</case>
```

```
</switch>
```

```
</formatStr>
```


Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	

```
<!--Override the valueStr, even though the value and formatStr has
been specified. This allows decoding of the Semaphore static into plain text. The only option is for a
Counting, or unknown Semaphore, where no CaseValue is specified. This allows the XML code to fall
through the Switch statement without finding a match. In this case, no value will be inserted into the
valueStr from here, leaving the XML code to compose one from the contents of the value combined with
the formatStr.-->
```

other value, let this fall through without filling in a value. In this case, a valueStr will be composed automatically from the value and formatStr entries-->

```

    </switch>
    </valueStr>
    <detailLevel>
      <literal>1</literal>
    </detailLevel>
  </objAttribute>
  <objAttribute key="objOptions">
    <label>
      <literal>Options</literal>
    </label>
    <value>
      <substitute fieldName="semOptions"/>
    </value>
    <formatStr>
      <literal>0x%08x</literal>
    </formatStr>
  </objAttribute>

```

Fig. 4f

```
<valueStr>
  <typedef>
    <switch fieldName="semOptions" fieldMask="0x0003">
      <case caseValue="0">
        <literal>SEM_Q_FIFO</literal>
      </case>
      <case caseValue="1">
        <literal>SEM_Q_PRIORITY</literal>
      </case>
      <case caseValue="*">
        <literal>SEM_Q_UNKNOWN</literal>
      </case>
    </switch>
    <bitfield fieldName="semOptions"
      fieldMask="0xFFFFFFFF">
      <bit mask="0x0004">
        <literal>SEM_DELETE_SAFE</literal>
      </bit>
      <bit mask="0x0008">
        <literal>SEM_INVERSION_SAFE</literal>
      </bit>
      <bit mask="*">
        <literal>SEM_UNKNOWN</literal>
      </bit>
    </bitfield>
  </typedef>
</valueStr>
<detailLevel>
  <literal>1</literal>
</detailLevel>
</objAttribute>
<objAttribute key="objIconSmall">
  <valueStr>
    <switch fieldName="semState">
      <case caseValue="0">
        <literal>sem.gif</literal>
      </case>
      <case caseValue="*">
        <literal>semempty.gif</literal>
      </case>
    </switch>
  </valueStr>
</objAttribute>
</objAttributes>
```

Fig. 4g

```
<objGopher>
  <switch fieldName="cpu">
    <case caseValue="*">
      <program>
        <!--Default Get object info for sem - taken from PPC860-->
        <![CDATA[! <+0x30*<+0x30@>>
<+0x28*$><+0x20*!><+0x8@> %nameLookup%<+0x34@b><+0x35@b><+0x48@>]]>
        </program>
        <tape>
          <field fieldName="objId"/>
          <field fieldName="objTypeNumber"/>
          <field fieldName="objName"/>
          <field fieldName="objOwner"/>
          <field fieldName="objChildListPtr"/>
          <field fieldName="semType"/>
          <field fieldName="semOptions"/>
          <field fieldName="semState"/>
        </tape>
      </case>
    </switch>
  </objGopher>
  <enumByType>
    <switch fieldName="cpu">
      <case caseValue="*">
        <program>
          <![CDATA[*+0x38** -0x18! <+0x30*<+0x30@>>
<+0x28*$><+0x20*!><+0x8@> <+0x34@b><+0x35@b><+0x48@>+0x18@>]]>
          </program>
          <tape>
            <field fieldName="objId"/>
            <field fieldName="objTypeNumber"/>
            <field fieldName="objName"/>
            <field fieldName="objOwner"/>
            <field fieldName="objChildListPtr"/>
            <field fieldName="semType"/>
            <field fieldName="semOptions"/>
            <field fieldName="semState"/>
            <field fieldName="objSiblingPtr"/>
          </tape>
        </case>
      </switch>
    </enumByType>
  </objGopher>
```



Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	

Fig. 5

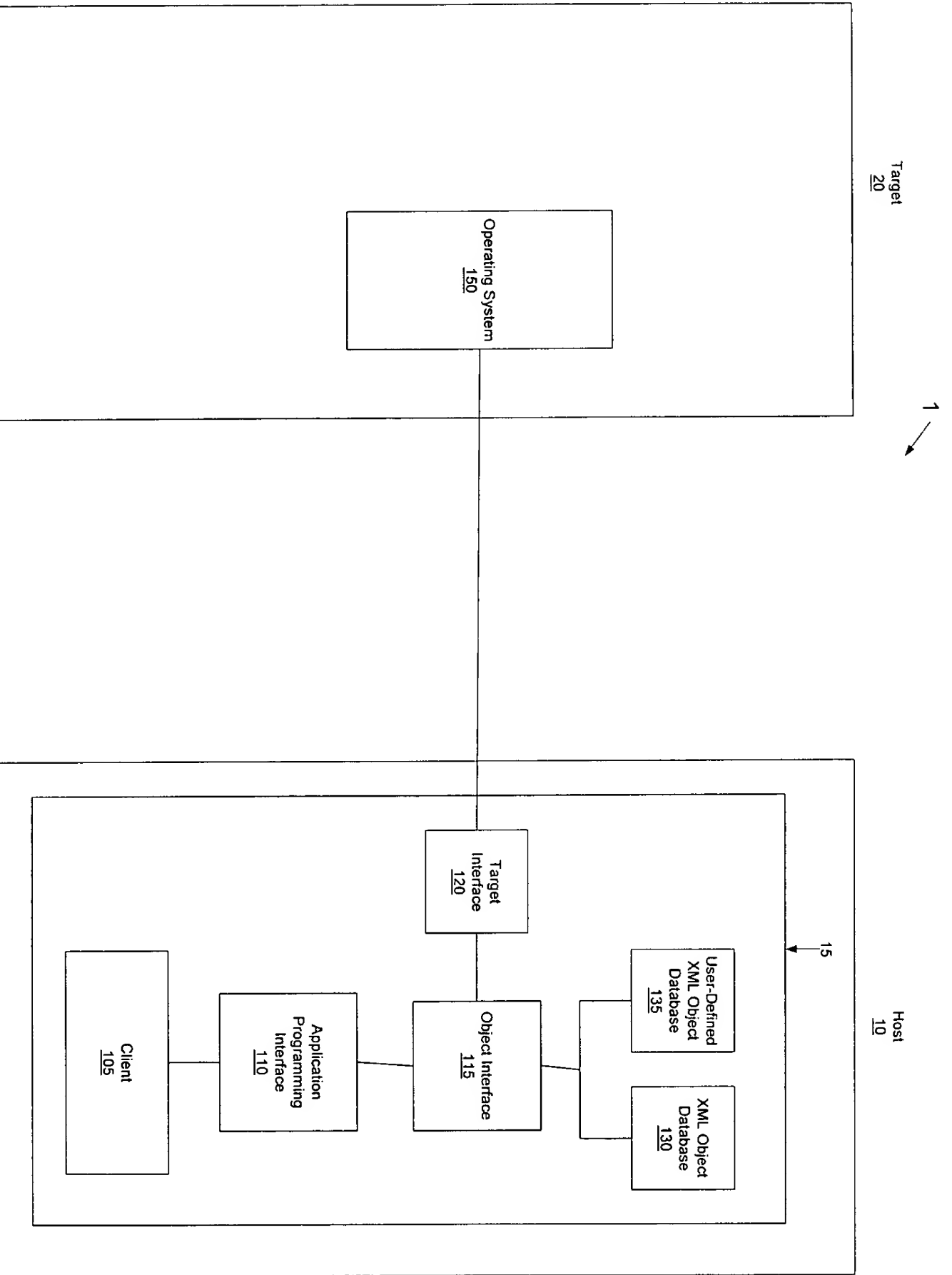


Fig. 6a

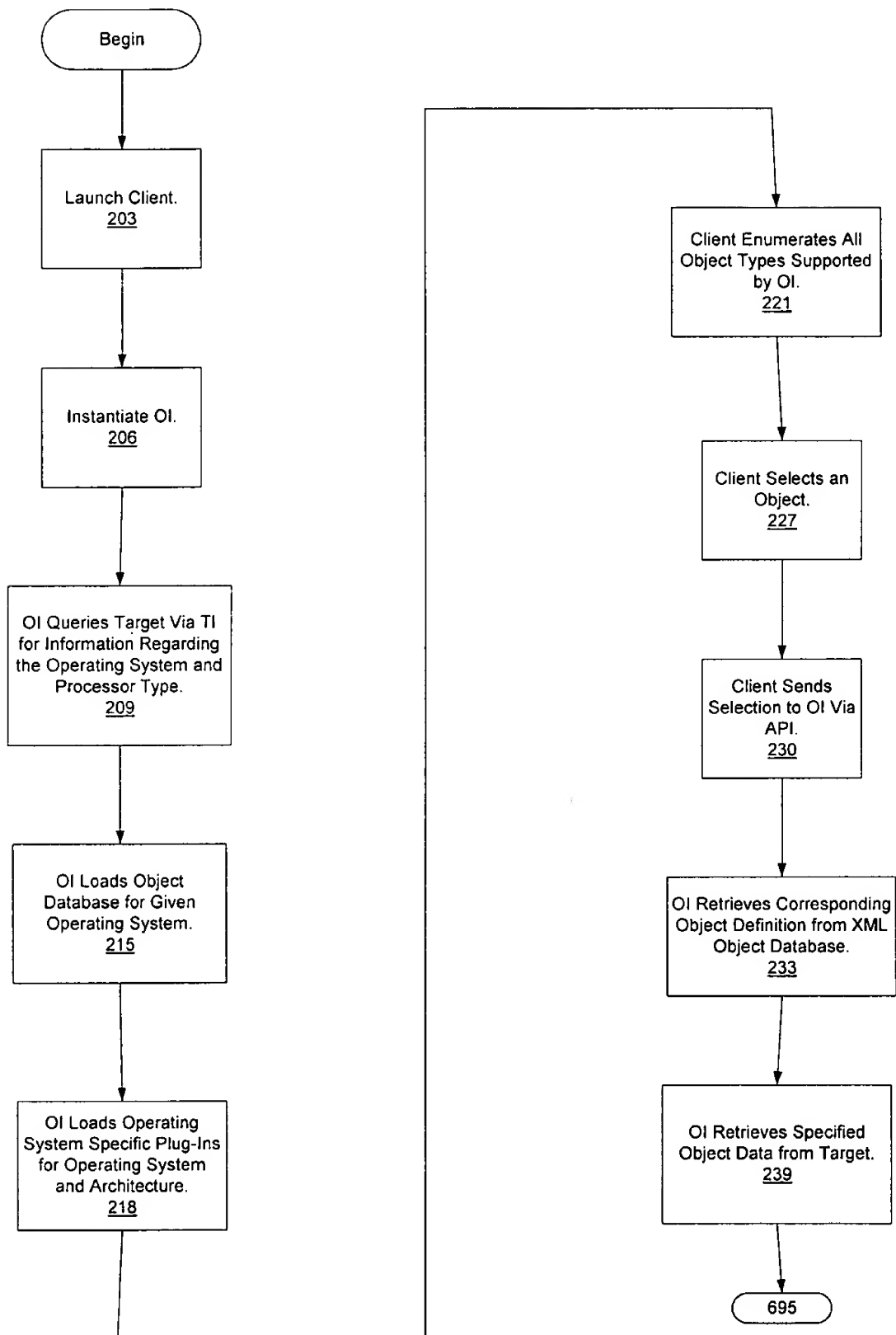


Fig. 6b

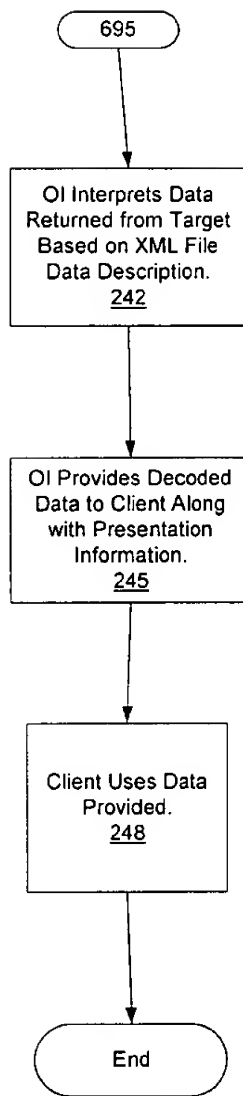


Fig. 7

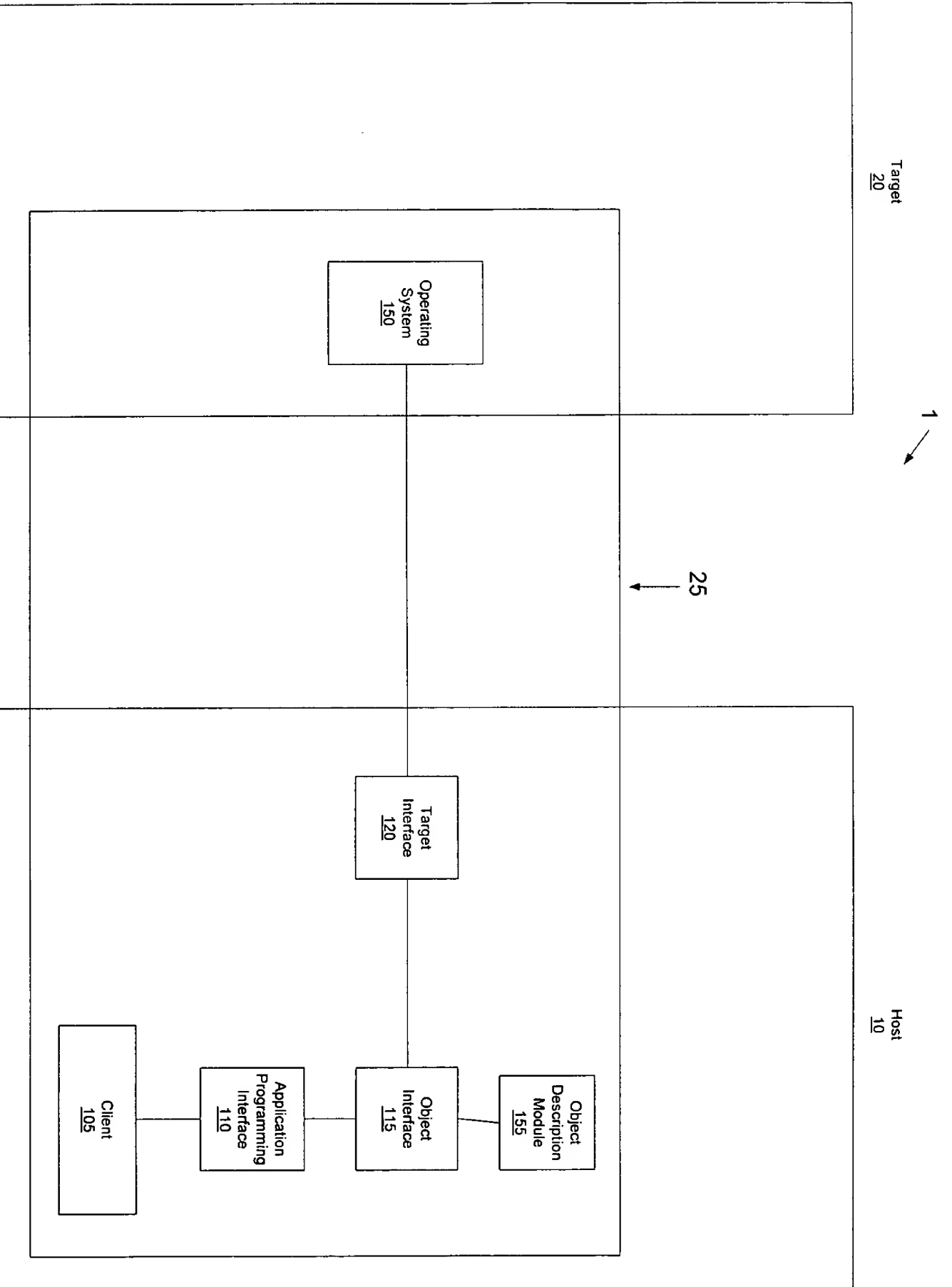


Fig. 8

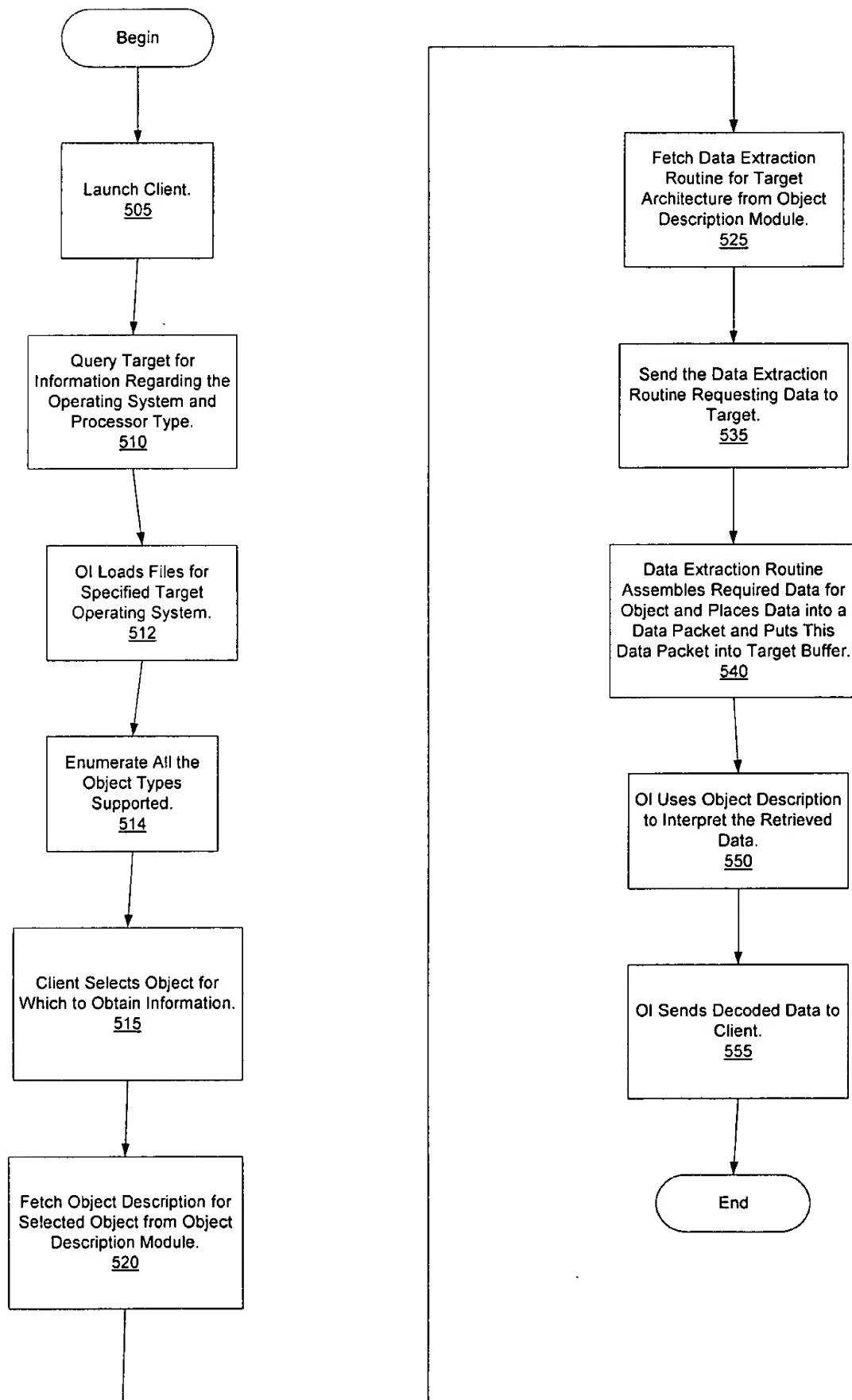


Fig. 9a

```
<?xml version="1.0" encoding="utf-8"?>
```

```
<object name="binarySemaphore"  
icon="k:\wpwr\host\resource\bitmaps\WindView\events\semBCreate.bmp">
```

```
<helpText>
```

```
<synopsis>
```

This is a short description of the object.

```
</synopsis>
```

```
<description>
```

This is a much longer description of the object.

This description can contain anything the user desires.

```
</description>
```

```
</helpText>
```

```
<publicDataGet>
```

```
<helpText>
```

```
<synopsis>Get all public data members</ synopsis>
```

```
<description> A full description of the routine</description>
```

```
</help Text>
```

```
<requestBegin>
```

```
<call name="semRequestBegin"/>
```

```
<return type="UINT8*"/>
```

```
<parm type="SEM_ID" name="semId"/>
```

```
</requestBegin>
```

```
<requestEnd>
```

```
<callname="semRequestEnd"/>
```

```
<return type="STATUS"/>
```

```
<parm type="UINT8 *" name="pBuff"/>
```

```
</requestEnd>
```

Fig. 9b

```
<data>
  <dataItem type="UINT" idref="pkLength" display="never"/>
  <dataItem type="UINT" idref="semId"
    text="Handle" format="0x08x" display="always"
    position="1"/>
  <dataItem type="UINT" idref="semClassId" display="never"/>
  <dataItem type="string" idref="name"
    text="Name" format="%s" display="always"
    position="0"/>
  <dataItem type="string" idref="owner"
    text="Owner" format="%s" display="always"
    position="2"/>
  <dataItem type="int" idref="value"
    text="State" format="translate" display="always"
    position="3"
    <translate key="0" value="Empty" format="%s"/>
    <translate key="1" value="Taken" format="%s"/>
    <translate key="*" value="Unknown" format="%s"/>
  </dataItem>
</data>
</pubicDataGet>
</object>
```